

Harvest of the Month

Network for a Healthy California



Nutrition Facts

Serving Size: ¼ cup avocado, sliced (30g)

Calories 50

Calories from Fat 39

	% Daily Value
Total Fat 5g	7%
Saturated Fat 1g	3%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 2mg	0%
Total Carbohydrate 3g	1%
Dietary Fiber 2g	8%
Sugars 0g	
Protein 1g	
Vitamin A 1%	
Vitamin C 4%	
Calcium 0%	
Iron 1%	

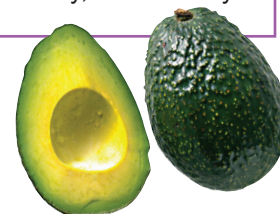
Source: www.nutritiondata.com

For nutrition information in bar graph format, visit the *Educators' Corner* at www.harvestofthemonth.com.

AVOCADOS
May

Health and Learning Success Go Hand-in-Hand

Summer is a perfect time to showcase California's bounty of fruits and vegetables. By including a variety of colorful fruits and vegetables in daily meals, students focus better and have more energy to be active. Help students eat more fruits and vegetables by encouraging them to participate in school meal programs, including the Summer Food Service Program. It will help students to eat more fruits and vegetables. Use **Harvest of the Month** to connect with core curricula and teach students about California agriculture and ways to practice a healthy, active lifestyle.



Exploring California Avocados

Offering activities that allow students to experience avocados using their senses engages them in the learning process and creates increased interest, awareness and support for eating more fruits and vegetables.

Tools:

- Ripe and unripe Hass avocados* (one each per every eight students)
- Paring knives and cutting boards (one per student group)
- White board and pens

*Refer to *What's in a Name?* on page 2 on how to choose ripe avocados

Sensory Exploration Activity:

- Observe and record external differences between ripe and unripe avocados (color, texture, smell, sound)
- Slice avocados in half; observe and record differences between ripe and unripe avocados (color, texture, smell, taste)
- Compare and contrast the fruit around the outer peel and the pit
- Record observations on white board; discuss findings
- Discuss how to choose ripe avocados and/or ripen at home

Optional: Discuss ethylene gas and its role in ripening fruit

For more ideas, reference:

Fruits and Vegetables Galore, USDA, 2004.

Cooking in Class: AvoSalsa

Ingredients:

Makes 32 tastes at ¼ cup each

- 4 medium Hass avocados (ripe)
- 2 medium tomatoes (ripe), diced
- ½ cup red onion, chopped
- 4 cloves garlic, minced
- 4 tablespoons fresh cilantro, chopped
- Juice of 1 large lime
- 1 teaspoon ground cumin
- ½ teaspoon ground black pepper
- ½ teaspoon salt
- Baked tortilla chips

Peel, pit and dice avocados. In medium bowl, combine all ingredients. Stir well but maintain chunky consistency. Let sit 10 minutes for best flavor. Serve with chips.

Adapted from: www.avocado.org

For more ideas, visit:

www.harvestofthemonth.com

How Much Do I Need?

A serving of avocados is one-quarter cup sliced avocado. This is about one-fifth of a medium avocado. Remind students to eat a variety of colorful fruits and vegetables throughout the day to reach their total daily needs.

Recommended Daily Amounts of Fruits and Vegetables*

Kids, Ages 5-12	Teens, Ages 13-18	Adults, 19+
2½ - 5 cups per day	3½ - 6½ cups per day	3½ - 6½ cups per day

*Ranges take into account three activity levels: sedentary, moderately active and active. For example, active individuals should aim to eat the higher number of cups per day. Visit www.mypyramid.gov to learn more.

May Events

- National Bike Month
- National Physical Fitness and Sports Month
- Women's Health Month

Reasons to Eat Avocados

One serving of avocado provides:

- A source of monounsaturated fat and omega-3 fatty acids.
- A source of antioxidants, including Vitamin E.
- A source of fiber, Vitamin K and folate.
- A source of many essential minerals including potassium, thiamin, iron, riboflavin, niacin, magnesium and manganese.

- Monounsaturated fat is a fatty acid that helps lower LDL (bad) cholesterol and boosts HDL (good) cholesterol.* Research suggests that the fat in avocados also increases the body's ability to absorb and use antioxidants.
- Omega-3 fatty acids are essential fatty acids that may help prevent heart disease.

* LDL: low-density lipoproteins
HDL: high-density lipoproteins

Visit the *Educators' Corner* at www.harvestofthemonth.com for definitions of nutritional terms.

Eat Your Colors

Fruits and vegetables come in a rainbow of colors. Eat a variety of colorful fruits and vegetables every day — red, yellow/orange, white, green and blue/purple. These may lower the risk of some cancers. Avocados are in the green color group.

Color Group	Health Benefits	Examples of Fruits and Vegetables
Green	Help maintain vision health and strong bones and teeth	Avocado, green grapes, honeydew melon, limes, basil, celery root, cherimoya, cucumber, leafy greens, watercress, zucchini

For more information, visit:
www.fruitsandveggiesmatter.gov



Home Grown Facts

- California ranks number one in avocado production, growing more than 90 percent of the nation's crop.
- More than 60,000 acres are harvested for avocados and ranks in the State's top 20 commodities with a total value of over \$380 million.
- Avocados are grown mainly along the coastline of Southern California. San Diego County leads the State (41%), followed by Ventura (29%), Riverside (13%), Santa Barbara (7%) and San Luis Obispo counties (6%).
- Although avocados are grown year-round, more than 75 percent of California's shipments take place between March and August.
- The Hass avocado accounts for almost 85 percent of California's total crop — a dramatic increase from its 15 percent share in 1957.

2004 Data

For more information, visit:
www.cdffa.ca.gov
<http://usda.mannlib.cornell.edu>

What's in a Name?

Pronunciation: äv'ə-kä'dō
Spanish name: aguacate
Family: Lauraceae
Genus: *Persea*
Species: *P. americana*



Avocado is an evergreen fruit tree of the flowering plant family Lauraceae. Originally called *ahuacatl* by the Aztecs of ancient Mexico, the fruit later became known as *aguacate* by the Spanish in the 16th century and nicknamed the "alligator pear" by English colonists who mistakenly substituted "alligator" for *aguacate* and added "pear" for the fruit's shape. The term *aguacate* eventually evolved into *avocado* by Americans who could not pronounce the Spanish.

Many people think avocados are green vegetables, but they are indeed fruits.* There are more than eighty different varieties grown in California, but the Hass avocado is the most common. The skin of Hass avocados turn a dark purple-black when ripe. Other California varieties are known as "greenskins" because their skins do not change color as they ripen. These include Fuerte, Zutano, Bacon, Pinkerton, Reed and Gwen.

*Do *Student Sleuths* on page 3 to learn why the avocado is botanically a fruit.

For more information, visit:

<http://food.oregonstate.edu/fag/uffva/avocado2.html>

A Slice of Avocado History

- Native to the tropics of Central America, the avocado tree originated in southern Mexico and Columbia around 5,000 B.C.E.
- Spanish conquistadors were presented with avocados upon their arrival in Central America by the Aztecs and Incas in the 16th century.
- By the early 1800s, the avocado had spread throughout southern Europe, the Hawaiian Islands, Africa and Southeast Asia.
- The avocado tree was first introduced to the United States in 1833 by Judge Henry Perrine who sent trees from Mexico to Florida.
- Dr. Thomas White of the California State Agricultural Society imported the first California avocado tree from Nicaragua to Los Angeles in 1856.
- The California avocado industry was founded in the early 1870s when trees in Santa Barbara (imported from Mexico) begin to bear fruit.
- Avocado grower Rudolph Hass developed the Hass variety in 1932 by grafting seedlings onto existing trees that produced the Lyon variety.
- Forty years later, the Hass variety became the dominant variety in California and throughout most of the world.

For more information, reference:

Cool as a Cucumber, Hot as a Pepper, Meredith Sayles Hughes, 1999.

Just the Facts

- Avocado trees can grow as tall as 80 feet and produce as many as 400 fruits annually.
- The United States provides 6 percent of the world's crop, ranking third behind Mexico and Chile.
- Forty-three percent of American households purchase avocados. Consumers love the rich, creamy texture of the Hass avocado and growers favor it for its disease-resistance and year-round growing cycle.
- The Hass avocado is commonly misspelled as Haas.

Sources:

www.cfaitc.org/Commodity/pdf/Avocados.pdf

Student Sleuths

- 1 Essential fatty acids are fats the body needs. Avocados provide sources of omega-3 and omega-6 fats. Why are omega-3 and omega-6 fats essential to our bodies? What are some of the health benefits they provide? Make a list of healthy foods that contain these essential fatty acids and identify which of these foods you eat daily and weekly.
- 2 All fruits are classified into two broad categories: dry and fleshy. The two main classes of fleshy fruits are drupes and berries. What kind of fruit is the avocado and why?
- 3 Avocados do not ripen on the tree and are commonly shipped unripe to prevent damage. Research the process of how avocados are harvested and shipped to market. Find out how long it takes on average for avocados to ripen once picked. Develop an experiment to speed up the ripening process. Present your results using charts and timelines to California avocado growers (by e-mail or letters).

For information, visit:

www.nutritiondata.com

www.ucavo.ucr.edu

www.cfaitc.org/Commodity/pdf/Avocados.pdf

Adventurous Activities

Science Investigations:

- Cut two avocados in half and remove seeds. Squeeze lemon juice over one half, apple juice over another, salt over another and leave the fourth one alone. Discuss oxidation as a class.
- Cut open an avocado seed. Identify the seed parts: embryo, cotyledons and seed coat. Draw the seed's cross-section.
- Study the parts of a flower's matured ovary (the fruit). Cut open an avocado. Identify the three pericarp layers: exocarp, mesocarp and endocarp. Discuss which facts classify the avocado as a fruit.*

*Accompany with above *Student Sleuths*.

For more ideas, visit:

www.harvestofthemonth.com



How Do Avocados Grow?

Mature avocado trees grow to about 65 feet tall and, if grown from seed, will produce fruit anytime after five to 20 years. It is biennial-bearing and may produce heavy crops one year followed by poor yields in the next. Intolerable to freezing temperatures, this evergreen tree can only grow in subtropical and tropical climates.*

To produce fruit within one to two years, commercial avocado orchards are planted using grafted trees and rootstocks. The species is unable to self-pollinate and most cultivars today are clonally propagated (without seed reproduction). The avocado fruit does not ripen on the tree but will fall off and ripen on the ground. Commercial avocados are picked unripe and shipped to ripen on the store shelf.

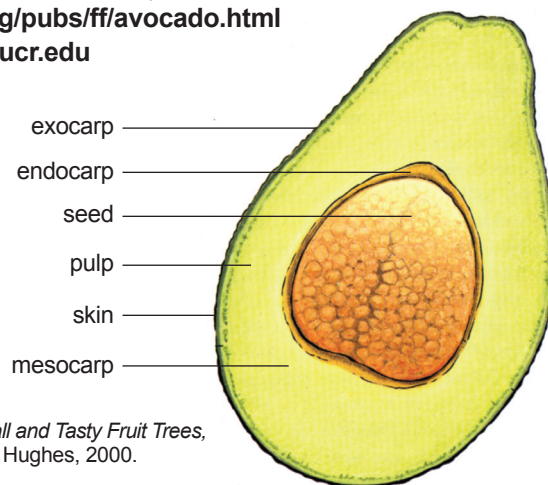
Soil	Loose, decomposed granite or sandy loam; well-drained; mulch layers
Temperature	60 to 80 F
Exposure	Full sun; protected from wind
Irrigation	Moist
Planting	Minimum 10 feet in all directions
Propagation	Terminal or lateral grafting of seedling rootstocks
Harvesting	Hand-harvest by clippers attached to poles

*The Hass variety was developed to withstand near freezing temperatures (31 F) making it available year-round.

For more information, visit:

www.crfg.org/pubs/ff/avocado.html

www.ucavo.ucr.edu



Adapted from: *Tall and Tasty Fruit Trees*, Meredith Sayles Hughes, 2000.

To download reproducible botanical images, visit the *Educators' Corner* at www.harvestofthemonth.com.

Literature Links

- **Elementary:** *Farmer's Market* by Marcie Rendon and Cheryl Bellville and *The World's Largest Plants: A Book About Trees* by Susan Blackaby.
- **Secondary:** *Americans in Agriculture: Portraits of Diversity* by USDA, *Cool as a Cucumber, Hot as a Pepper: Fruit Vegetables* by Meredith Sayles Hughes, *New Junior Garden Book* by Felder Rushing and *Seedfolks* by Paul Fleischman.

For more ideas, visit:

www.cfaitc.org/Bookshelf/Bookshelf.php

School Garden: Avocado Trees

Students can practice gardening at home by growing their own miniature avocado tree. A tree grown from seed may take from five to 13 years to flower and bear fruit and require little maintenance once planted. Do not expect this tree to bear fruit unless grafting is used.

Tools:

- One large avocado seed, washed
- Three toothpicks
- Glass jar
- Large pot (about 10½-inch diameter)
- Humus soil for pot

Activity:

- Use toothpicks to suspend seed (broad end down) over water-filled jar. Seed should be covered about one inch.
- Place jar in warm place out of direct sunlight. Replenish water as needed.
- Roots and stems will sprout in about two to six weeks.
- When stem is about seven inches long, cut back to three inches.
- When roots are thick and stems have leaves again, transplant to pot leaving the seed half-exposed.
- Water lightly and frequently. Keep soil moist, not saturated.*
- When stem is 12 inches high, cut back to six inches.

*Hint: Yellow leaves are a sign of over-watering; let plant dry out for a few days. Brown or fried leaves are a sign that there is too much salt in the soil. Allow water to run freely in the pot and drain for several minutes.

Adapted from: www.avocado.org

For more ideas, visit:
www.lifelab.org

Physical Activity Corner

More than 100,000 Californians will participate in **Bike Commute Week**. Lead by example and ride your bike to and from school. Commuting by bike will help you reach your total daily physical activity needs. Students should get at least 60 minutes of physical activity every day. Here are some ways to promote Bike Commute Week:

- Find safe and convenient bike routes to school, stores and local parks.
- Distribute maps of bike routes to students and families.
- Provide secure place for storing bikes.
- Remind students of proper biking safety (e.g., helmets, lights, hand signals).

For more information, visit:
www.bikeleague.org

Cafeteria Connections

- **Grades K–5:** Show students how easy it can be to grow a tree from seed. Implement the *School Garden* activity on this page. Put the avocado seedling prominently on display in cafeteria. Engage students by having them help you water and trim stem. At the end of the school year, give seedling to a classroom.
- **Grades 6–12:** The avocado has a rich, cultural history. It is used internationally in recipes and was considered a treasure in ancient times and commonly presented as a gift. Celebrate diversity in the cafeteria by sponsoring an “Around the World with Avocados” activity.

Ideas to Get Started:

- Involve students or entire classrooms.
- Display students’ work on the cafeteria bulletin board.
- Students select a country or group of people and research how the avocado has been used.
- Students develop a timeline and/or draw a cultural map to show findings.
- Students should include healthy recipes featuring the avocado.

For more information, visit:

www.cfaitec.org/Commodity/pdf/Avocados.pdf

Student Advocates

Encourage students to read Nutrition Facts labels and know what types of fats (trans, saturated, unsaturated) are in certain food items.*

- Monitor and record what foods are on the school campus.
- Analyze the Nutrition Facts of these items, noting the fat content.
- Make a list of items that contain trans fats and high levels of saturated fats (e.g., above 20 percent of the recommended Daily Value).
- Write a letter to school officials requesting that healthy food items be sold on campus.
- Include reasons in the letter why these healthier items should be provided and list examples to replace less nutritious items.

Note: This activity can also be implemented by analyzing the sugar content of vending machine items (foods and drinks).

*To learn about fats, do *Student Sleuths* on page 3.

Next Month: Peaches

